from claim 2, which as pointed out by the Examiner, was informal in that the dependency of the parent claim of claim 2 was not indicated. By the present amendment, claim 2 has been amended to properly depend from claim 1, and claims 5-8 and 14 have been written in independent form, such that these claims should now be in condition for allowance.

Applicants note that new claims 16-20 have been presented, which are directed to the magnetic resonance imaging apparatus of elected invention I and should be considered at this time.

As to the objection to claim 2, as noted above, claim 2 has been amended to depend from claim 1, such that this objection should now be overcome.

As to the rejection of claims 1-4, 13 and 15 under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,357,958 to Kaufman in view of U.S. Patent No. 5,014,070 to Danby et al, this rejection is traversed, and reconsideration and withdrawal of the rejection are respectfully requested.

At the outset, as to the requirements to support a rejection under 35 U.S.C. 103, reference is made to the decision of In re Fine, 5 USPQ 2d 1596 (Fed. Cir. 1988), wherein the court pointed out that the PTO has the burden under §103 to establish a prima facie case of obviousness and can satisfy this burden only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references. As noted by the court, whether a particular combination might be "obvious to try" is not a legitimate test of patentability and obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the combination. As further noted by the court, one cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention.

Furthermore, such requirements have been clarified in the recent decision of In re Lee, 61 USPQ 2d 1430 (Fed. Cir. 2002) wherein the court in reversing an

obviousness rejection indicated that deficiencies of the cited references cannot be remedied with conclusions about what is "basic knowledge" or "common knowledge". The court pointed out:

> The Examiner's conclusory statements that "the demonstration mode is just a programmable feature which can be used in many different device[s] for providing automatic introduction by adding the proper programming software" and that "another motivation would be that the automatic demonstration mode is user friendly and it functions as a tutorial" do not adequately address the issue of motivation to combine. This factual question of motivation is immaterial to patentability, and could not be resolved on subjected belief and unknown authority. It is improper, in determining whether a person of ordinary skill would have been led to this combination of references, simply to "[use] that which the inventor taught against its teacher."... Thus, the Board must not only assure that the requisite findings are made, based on evidence of record, but must also explain the reasoning by which the findings are deemed to support the agency's conclusion. (emphasis added)

In setting forth the rejection, the Examiner contends that Kaufman discloses an open MRI system with a yoke for combining the magnetic devices to form a closed magnetic circuit, but that Kaufman does not delve into the structure of the yoke. Accordingly, the Examiner cites Danby et al as disclosing ferromagnetic yoke magnets for MRI studies and indicates:

> The yoke includes a first plate member and a second plate, and support post members interconnecting the plate members. Shim bars are disposed on the pole faces to minimize leakage field strength and increase the volume of uniform magnetic field (columns 3-8; figures 1-7). It would have been obvious to one having ordinary skill in the art at the time of the invention to have used the yoke assembly disclosed by Danby et al with the MRI system disclosed by Kaufman because Kaufman utilizes yoke with magnetic devices in face-to-face relation, as does Danby et al and such yoke structures are well known in the art. (emphasis added)

Irrespective of the contentions by the Examiner, applicants submit that the combination of Kaufman and Danby et al fail to provide the claimed features of independent claim 1, and the dependent claims of this application. More particularly,

independent claim 1, from which claims 2-4, 13 and 15 depend directly or indirectly, recite the feature of a yoke in accordance with the present invention as including:

> a first plate member fixed to a first magnetic device, a second plate member fixed to a second magnetic device and one or more support-post members interconnecting said first plate member and said second plate member, each of said first and second plate members and support-post members includes a plurality of segments formed in such a shape as to minimize leakage field strength from said first magnetic device and said second magnetic device. (emphasis added)

This structural arrangement is described in connection with Fig. 2 of the drawings, for example, at page 14, lines 6 et. seq., that the iron yoke 17 forms a magnetic circuit to reduce the leakage fluxes of such a superconducting magnet 16 as mentioned above. As main components, the iron yoke includes an upper plate member 25, a lower plate member 26 and a left and a right support-post members 27, 28 interconnecting the upper and lower plate members 25, 26, as illustrated. As described at page 14, lines 15-23, the upper plate member 25, the lower plate member 26 and the left and right support-post members 27, 28 are each composed of a plurality of iron plates, i.e., a plurality of segments. As described at page 16, lines 2-8, the yoke is composed of a plurality of segments, and the shapes of the segments of the yoke are selected so that the yoke minimizes the leakage fluxes of the superconducting magnets and also minimizes the effect of the electromagnetic force between the superconducting coils and the iron yoke. As shown in Fig. 14, which shows the shape of the right support-post portion of the yoke 17, such portion is constructed by a combination of a plurality of segments 100. Likewise, as shown in Fig. 5, the lower plate member 26 includes a first component plate 51 and a second component plate 52 representing segments of appropriate shape, and likewise, the upper plate member 25 is formed with a similar construction, such that as clearly described and illustrated in Figs. 5, 6, 9 and 10, the upper and lower plate members are formed by laminating two segment plates 51 and 52 and two segment plates 60 and 62, respectively, and the yoke is composed of a plurality of segments

and the shapes of the segments of the yoke are selected so that the yoke minimizes the leakage fluxes of the superconducting magnets. Applicants note that such construction enables the yoke 17 to be constructed in a plurality of segments enabling matching of the magnetic flux density with the leakage fluxes of the superconducting magnets being reduced to a minimum. Thus, the construction process is enabled with the weight of the entire yoke 17 when considered in conjunction with the individual segments being such as to enable transport by assembly and disassembly, rather than by moving a massive structure and forming a massive structure as in prior art constructions. Applicants submit that the recited features of claim 1 and the dependent claims are not disclosed or taught in the cited art.

With respect to Kaufman, as recognized by the Examiner, this patent does not disclose a structure of the yoke as disclosed and claimed herein. Applicants note that Kaufman merely teaches "massive ferrous yoke structure 104" in col. 3, lines 55-56, and does not disclose or teach a yoke composed of a plurality of segments for each of the upper and lower plates and the support-post members, which segments have a shape so that the yoke minimizes the leakage flux of the magnetic devices, as recited in claim 1.

With respect to Danby et al, while this patent discloses a ferromagnetic yoke magnetic for MRI, the yoke includes upper and lower supports 13, 14 and four columns or support-post members 16-19. Each of the upper support 13, lower support 14 and columns 16-19 is formed as a single body. Danby et al does not disclose or teach the recited features of claim 1 that each of the first and second plate members and support -post members includes a plurality of segments formed in such a shape as to minimize leakage field strength from the first magnetic device and the second magnetic device. While the Examiner refers to the utilization of shim bars 22 and 23 as illustrated in Fig. 4, which may be mounted on the pole pieces 11 and 12 and which are used to reduce fringing of the magnetic field around the

periphery of the pole pieces 11, 12 as described in col. 3, lines 60-65 of Danby et al, applicants submit that the shim bars do not constitute a segment of the pole pieces 11 and 12, which are formed as a single body. Additionally, there is no disclosure or teaching of utilizing the shim bars with respect to the columns 16-19, and applicants submit that the recited features of claim 1 and the dependent claims are not disclosed or taught by Danby et al in the sense of 35 U.S.C. 103 and Danby et al and Kaufman cannot be properly combined to provide the claimed features as set forth in claim 1 and the dependent claims of this application. See In re Fine, supra. Thus, applicants submit that claim 1 and the dependent claims patentably distinguish over this proposed combination of references in the sense of 35 U.S.C. 103, and should be considered allowable thereover.

With respect to the features of dependent claims 2, 3, 4, 13, 15 and newly added dependent claims 16 and 17, which depend directly or indirectly from independent claim 1, applicants note that such claims recite additional feature which, when considered in conjunction with parent claim 1, recite additional features not disclosed or taught by the cited art. Accordingly, applicants submit that claim 1 and the dependent claims should be considered allowable over the cited art in the sense of 35 U.S.C. 103.

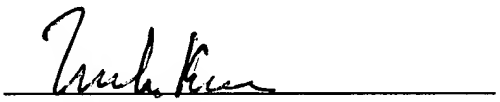
With respect to newly added independent claim 18 and its dependent claims 19 and 20, claim 18 recites the feature of the yoke including a first plate member fixed to a first magnetic device, a second plate member fixed to a second magnetic device in one or more support-post members interconnecting said first plate member and said second plate member, each of said first and second plate members and support-post members includes a plurality of segments. As clearly pointed out above, neither Kaufman nor Danby et al taken alone or in combination disclose or teach the yoke having the first and second plate members and support-post members as each including a plurality of segments. Dependent claims 19 and 20 define the features that the plurality of segments are of different shapes and that the

plate members and support members are constructed by stacking in two or more layer segments. None of these features are disclosed or taught in the cited art, such that applicants submit that claims 18-20 also patentably distinguish over this cited art in the sense of 35 U.S.C. 103 and should be considered allowable thereover.

In view of the above amendments and remarks, applicants submit that all claims present in this application should now be in condition for allowance, and issuance of an action of a favorable nature is courteously solicited.

To the extent necessary, applicant's petition for an extension of time under 37 CFR 1.136. Please charge any shortage in the fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 01-2135 (500.40852X00) and please credit any excess fees to such deposit account.

Respectfully submitted,



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**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

**IN THE CLAIMS:**

Please amend claim 2 as follows:

2. (amended) Magnetic resonance imaging apparatus according to claim 1, wherein each of said first and second plate members and said support-post members includes a plurality of segments of different shapes and said segments are combined in a pattern to match lines of magnetic induction generated by said first and second magnetic devices.

Please rewrite claims 5-8 in independent form as follows:

5. (amended) Magnetic resonance imaging apparatus ~~according to Claim 2,~~ comprising:

a pair of a first magnet device and a second magnet device for generating a magnetostatic field, said pair of magnet devices being installed in face-to-face relation with each other across an examination space for accommodating an examinee;

a gradient-field generating device;

a high-frequency field generating device; and

a yoke for combining said first and second magnetic devices to guide magnetic fluxes generated by said first and second magnetic devices to thereby form a closed magnetic circuit, wherein said yoke includes a first plate member fixed to a first magnet device, a second plate member fixed to a second magnet device and one or more support-post members interconnecting said first plate member and said second plate member, each of said first and second plate members and support-post members includes a plurality of segments formed in such a shape as to minimize leakage field strength from said first magnet device and said second magnet device;

wherein each of said first and second plate members and said support-post members includes a plurality of segments of different shapes and said segments are combined in a pattern to match lines of magnetic induction generated by said first and second magnetic devices; and

wherein said first and second plate members are formed by a larger number of segments at positions thereon where said first and second plate members are connected to said support-post members and also in vicinities of said positions than at the other positions.

6. (amended) Magnetic resonance imaging apparatus ~~according to Claim 2,~~ comprising:

a pair of a first magnet device and a second magnet device for generating a magnetostatic field, said pair of magnet devices being installed in face-to-face relation with each other across an examination space for accommodating an examinee;

a gradient-field generating device;

a high-frequency field generating device; and

a yoke for combining said first and second magnetic devices to guide magnetic fluxes generated by said first and second magnetic devices to thereby form a closed magnetic circuit, wherein said yoke includes a first plate member fixed to a first magnet device, a second plate member fixed to a second magnet device and one or more support-post members interconnecting said first plate member and said second plate member, each of said first and second plate members and support-post members includes a plurality of segments formed in such a shape as to minimize leakage field strength from said first magnet device and said second magnet device;

wherein each of said first and second plate members and said support-post members includes a plurality of segments of different shapes and said segments are combined in a pattern to match lines of magnetic induction generated by said first and second magnetic devices; and

wherein said first and second plate members have different numbers of segments at different positions based on a calculated magnetic flux distribution in said yoke.

7. (amended) Magnetic resonance imaging apparatus ~~according to Claim 2,~~ comprising:

a pair of a first magnet device and a second magnet device for generating a magnetostatic field, said pair of magnet devices being installed in face-to-face relation with each other across an examination space for accommodating an examinee;

a gradient-field generating device;

a high-frequency field generating device; and

a yoke for combining said first and second magnetic devices to guide magnetic fluxes generated by said first and second magnetic devices to thereby form a closed magnetic circuit, wherein said yoke includes a first plate member fixed to a first magnet device, a second plate member fixed to a second magnet device and one or more support-post members interconnecting said first plate member and said second plate member, each of said first and second plate members and support-post members includes a plurality of segments formed in such a shape as to minimize leakage field strength from said first magnet device and said second magnet device;

wherein each of said first and second plate members and said support-post members includes a plurality of segments of different shapes and said segments are combined in a pattern to match lines of magnetic induction generated by said first and second magnetic devices; and

wherein said first and second plate members have segments of shapes to match a calculated magnetic flux distribution.

8. (amended) Magnetic resonance imaging apparatus ~~according to Claim 1,~~ comprising:

a pair of a first magnet device and a second magnet device for generating a magnetostatic field, said pair of magnet devices being installed in face-to-face relation with each other across an examination space for accommodating an examinee;

a gradient-field generating device;

a high-frequency field generating device; and

a yoke for combining said first and second magnetic devices to guide magnetic fluxes generated by said first and second magnetic devices to thereby form a closed magnetic circuit, wherein said yoke includes a first plate member fixed to a first magnet device, a second plate member fixed to a second magnet device and one or more support-post members interconnecting said first plate member and said second plate member, each of said first and second plate members and support-post members includes a plurality of segments formed in such a shape as to minimize leakage field strength from said first magnet device and said second magnet device;

wherein said first and second plate members and said support-post members are constructed by stacking in two or more layers segments formed by cutting steel plate.

Please cancel claims 9-12, which stand withdrawn from consideration as being directed to a non-elected invention, without prejudice or disclaimer of the subject matter thereof and without prejudice to the right to file a divisional application directed thereto.

Please rewrite claim 14 in independent form as follows:

14. (amended) Magnetic resonance imaging apparatus ~~according to Claim 1,~~ comprising:

a pair of a first magnet device and a second magnet device for generating a magnetostatic field, said pair of magnet devices being installed in face-to-face

relation with each other across an examination space for accommodating an examinee;

a gradient-field generating device;

a high-frequency field generating device; and

a yoke for combining said first and second magnetic devices to guide magnetic fluxes generated by said first and second magnetic devices to thereby form a closed magnetic circuit, wherein said yoke includes a first plate member fixed to a first magnet device, a second plate member fixed to a second magnet device and one or more support-post members interconnecting said first plate member and said second plate member, each of said first and second plate members and support-post members includes a plurality of segments formed in such a shape as to minimize leakage field strength from said first magnet device and said second magnet device;

wherein said shape to minimize said leakage field strength from said first and second magnet devices is a shape formed by varying a thickness of said segments according to a flux density of said leakage field generated by said first and second magnet devices.

Please add the following new claims:

--16. Magnetic resonance imaging apparatus according to claim 1, wherein each of said first and second plate members and said support-post members includes a plurality of segments of different shapes and said segments are combined in a pattern to match lines of magnetic induction generated by said first and second magnetic devices, said shape to minimize said leakage field strength from said first and second magnet devices is shape to match lines of magnetic induction generated by said first and second magnetic devices, and said shape to minimize said leakage field strength from said first and second magnet devices is a shape formed by varying a thickness of said segments according to a flux density of said leakage field generated by said first and second magnet devices.

17. Magnetic resonance imaging apparatus according to claim 2, wherein said first and second plate members have different numbers of segments at different positions based on a calculated magnetic flux distribution in said yoke, and said first and second plate members have segments of shapes to match a calculated magnetic flux distribution.

18. Magnetic resonance imaging apparatus comprising:

a pair of a first magnet device and a second magnet device for generating a magnetostatic field, said pair of magnet devices being installed in face-to-face relation with each other across an examination space for accommodating an examinee;

a gradient-field generating device;

a high-frequency field generating device; and

a yoke for combining said first and second magnetic devices to guide magnetic fluxes generated by said first and second magnetic devices to thereby form a closed magnetic circuit, wherein said yoke includes a first plate member fixed to a first magnet device, a second plate member fixed to a second magnet device and one or more support-post members interconnecting said first plate member and said second plate member, each of said first and second plate members and support-post members includes a plurality of segments.

19. Magnetic resonance imaging apparatus according to claim 18, wherein each of said first and second plate members and said support-post members includes a plurality of segments of different shapes.

20. Magnetic resonance imaging apparatus according to claim 18, wherein said first and second plate members and said support-post members are constructed by stacking in two or more layer segments.--